

## Claims

What is claimed is:

1. A method for modifying combustion in a combustion chamber of a 4-stroke internal combustion engine running under standard warm (non-starting) engine temperatures, the method comprising the step of briefly opening a combustion chamber valve sometime during a period spanning:
  - a. the latter half of the compression stroke, and
  - b. the first half of the power stroke.
2. The method of claim 1 wherein the briefly opening of the combustion chamber valve effects an escape of no greater than approximately 15% of the mass of the combustion chamber contents.
3. A method for modifying combustion in a combustion chamber of a 4-stroke internal combustion engine running under standard warm (non-starting) engine temperatures, the method comprising the step of briefly opening a combustion chamber valve during a period extending over at least one of the compression stroke and the power stroke, with such brief opening effecting an escape of no more than approximately 15% of the mass of the combustion chamber contents.
4. The method of any of the foregoing claims wherein the combustion chamber valve is briefly opened two or more times during the period.

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6. The method of any of the foregoing claims wherein the combustion chamber valve is briefly opened during the period of crankshaft rotation between:
- a. 50 degrees before top dead center, and
  - b. 50 degrees after top dead center.
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7. The method of any of the foregoing claims wherein the combustion chamber valve is briefly opened during the period of crankshaft rotation between:
- a. 30 degrees before top dead center, and
  - b. 30 degrees after top dead center.
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8. The method of any of the foregoing claims wherein the combustion chamber valve is briefly opened for no greater than approximately 7 degrees of crankshaft rotation.
9. The method of any of the foregoing claims wherein the combustion chamber valve is briefly opened for no greater than approximately 5 degrees of crankshaft rotation.
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10. The method of any of the foregoing claims wherein the combustion chamber valve which is briefly opened is an intake valve.
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11. The method of any of the foregoing claims wherein the combustion chamber valve is briefly opened at or substantially near the time of ignition.
12. The method of any of the foregoing claims wherein multiple combustion chamber valves are briefly opened during the period.

13. The method of claim 12 wherein at least some of the multiple combustion chamber valves are briefly opened during the period starting at different times.
14. The method of claim 12 or 3 wherein the multiple combustion chamber valves include an intake valve and an exhaust valve.

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